

AS



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,517	04/20/2001	Patrick S. Meagher	41 EB-1006	4623

23465      7590      01/26/2005  
JOHN S. BEULICK  
C/O ARMSTRONG TEASDALE, LLP  
ONE METROPOLITAN SQUARE  
SUITE 2600  
ST LOUIS, MO 63102-2740

EXAMINER

MANIWANG, JOSEPH R

ART UNIT      PAPER NUMBER

2144

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicant(s)

09/681,517

Applicant(s)

MEAGHER ET AL.

Examiner

Joseph R Maniwang

Art Unit

2144

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,6-15 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-15 and 17-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 103***

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hart et al. (U.S. Pat. No. 6,005,759), hereinafter referred to as Hart, and further in view of Swales ("Open MODBUS/TCP Specification", Release 1.0, Schneider Electric, 29 Mar 1999), hereinafter referred to as Swales.
3. Hart disclosed a method and system for monitoring and controlling an electrical distribution network. The system included intelligent electric devices (IEDs), a control computer comprising a server for creating messages intended for the IEDs, and a gateway for communicating with the server and to transmit messages to the IEDs (see column 2, lines 22-67). The server computer communicating with the gateway included various application programs (see column 2, lines 23-28; column 7, lines 16-20). The gateway was configured to transmit messages to at least one IED (see column 4, lines 42-55). The gateway was also configured to extract and encapsulate messages from the server to be delivered to IEDs, and to encapsulate return messages from the IEDs for transmission to the server. Hart disclosed encapsulation as a way to allow the use of different network protocols in the system, made possible by encapsulation of a message in a first protocol to a second protocol (see column 13, lines 50-65). In this

Art Unit: 2144

way, Hart disclosed encapsulation of messages in an industry standard format as claimed. Hart specifically disclosed the use of the MODBUS protocol for use between the server and gateway, and the DNP protocol for use between the gateway and IEDs (see column 14, lines 50-65).

4. While Hart disclosed the use of industry standard protocols for communication in the system, Hart did not specifically disclose the use of TCP/IP for communication of messages in the system.

5. In a related art of electrical distribution network monitoring and controlling, Swales disclosed the MODBUS/TCP protocol. MODBUS/TCP was disclosed as an automation standard and a variant of the well-known MODBUS family of protocols. The MODBUS/TCP protocol extended the use of the MODBUS protocol to an Intranet/Internet environment by using the TCP/IP protocol through Ethernet gateways (see p. 3, section 2).

6. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Hart and Swales to provide a system for communicating messages between an Ethernet server, gateway, and IEDs using the TCP/IP protocol to encapsulate messages. Both MODBUS and TCP/IP were well-known standards at the time of invention. As stated above, MODBUS/TCP was in essence a combination of the two standard protocols. One of ordinary skill in the art would have been motivated to consider the use of MODBUS/TCP in the invention of Hart as it offered improvements such as wider tolerance to network performance changes, security, and greater flexibility (see p. 3, section 2.1).

***Response to Arguments***

7. Applicant's arguments filed 08/20/04 have been fully considered but they are not persuasive.

8. Applicant traverses the rejection of claims 1-21 under 35 U.S.C. 103(a) as being unpatentable over Hart et al. (U.S. Pat. No. 6,005,759) in view of Swales ("Open MODBUS/TCP Specification", Release 1.0, Schneider Electric, 29 March 1999). Claims 4, 5, and 16 have been cancelled, and Examiner maintains the rejection of claims 1-3, 6-15, and 17-21 as detailed below.

9. Regarding claim 1, Applicant asserts that the references do not teach an Ethernet gateway configured to encapsulate a second set of messages returned from an IED with an industry standard header and footer for transmission to the Ethernet server. Examiner submits however that as described in the above rejection, the invention of Hart reads upon this broad concept. Hart disclosed the use of a LAN gateway configured to encapsulate a 2<sup>nd</sup> set of reply messages sent by IEDs to a master application (or broadly, a server) into a standard protocol (see column 2, lines 60-62; column 13, lines 55-62). Hart further disclosed that encapsulated messages contained beginning and ending information specific to the protocol being used, or in other words an industry standard header and footer as claimed (see column 15, line 56 through column 17, line 3).

10. Regarding claim 9, Applicant asserts that the references do not teach configuring the gateway to extract an industry standard header and an industry standard footer from

Art Unit: 2144

the second set of encapsulated messages. However, Examiner submits that Hart disclosed the ability for the gateway to extract encapsulation from message intended for IEDs as claimed (see column 13, lines 51-65; column 15, lines 14-55).

11. Regarding claim 15, Applicant asserts that the references do not teach a computer programmed to function as an Ethernet server for transmission of the messages and encapsulate the messages with a TCP/IP Ethernet header and footer, where the messages are received by an intelligent end device. However, Examiner submits that Hart undoubtedly reads upon this broad concept, where it was disclosed that a master application built messages, and communicated them to the IEDs in encapsulated form (see column 5, lines 29-48; column 7, lines 16-20; column 14, lines 50-65). Furthermore, as detailed in the above rejection, the combination of references suggest that the MODBUS protocol could be used in conjunction with TCP/IP.

12. Regarding claim 17, Applicant asserts the references do not teach a programmable hardware device configured to remove both an Ethernet header and footer from the first set of Ethernet messages, leaving a second set of message for transmission to at least one intelligent end device. However, Examiner submits that Hart disclosed such a removal of encapsulation from a message for delivery to an IED as claimed, where it was disclosed that a received embedded MODBUS protocol could be stripped of DNP encapsulation, then sent to an IED for processing (see column 15, lines 14-34).

13. Applicant asserts that the rejection under 35 U.S.C. 103(a) is improper because there is no motivation to combine the references suggested in the cited art itself. In

Art Unit: 2144

response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). However in this case, as stated in the above rejection, one of ordinary skill in the art would have been motivated to consider the use of MODBUS/TCP in the invention of Hart as Swales disclosed that it offered improvements such as wider tolerance to network performance changes, security, and greater flexibility (see p. 3, section 2.1).

14. Applicant further asserts that as there appears to be no suggestion for combining the references, the rejection must be based on impermissible hindsight reconstruction. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). As recited above, the references do suggest motivation for combining the references. It is clear through the disclosure of Hart that the use of the MODBUS protocol was well-known at the time

Art Unit: 2144

of invention. Swales further disclosed that at the time of invention, the MODBUS/TCP protocol was an automation standard and a variant of the well-known MODBUS family of protocols. Thus, the teachings of the references contained both motivation for combining and information well-known at the time of invention, which makes this obviousness reasoning proper.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph R Maniwang whose telephone number is (571) 272-3928. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William A Cuchlinski can be reached on (571) 272-3925. The fax phone

Art Unit: 2144

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JM

MARC D. THOMPSON  
*MARC THOMPSON*  
PRIMARY EXAMINER